

## **Appendix A**

### **Selected Methods and Results from Department of Fish and Game 2003 Siskiyou Mountains Salamander Field Surveys**

# Department of Fish and Game Siskiyou Mountains Salamander Site Information Form

Observers: \_\_\_\_\_ USDA/Company Site ID: \_\_\_\_\_  
 Org./Phone # \_\_\_\_\_ Latitude\* N \_\_\_\_\_  
 Date: \_\_\_\_\_ Longitude\* W - \_\_\_\_\_

Photo #s \*

0° \_\_\_\_\_

90° \_\_\_\_\_

180° \_\_\_\_\_

270° \_\_\_\_\_

## 1. CHARACTERIZATION FOR ENTIRE 1/10-ACRE PLOT

### Site Description

% Slope\* \_\_\_\_\_  
 Azimuth\* \_\_\_\_\_  
 Elevation\* \_\_\_\_\_  
 CWHR\* \_\_\_\_\_  
 BA hwd\* \_\_\_\_\_  
 BA cfi\* \_\_\_\_\_

### Percent Cover\*

Rock ≥1"	
Moss/Lichen	
Leaf Litter	
Slash*	
Medium Logs*	
Large Logs*	
Grasses/Forbs	
Understory*	
Overstory*	

### Rock Composition\*

Bare Soil <1/16"	%
Gravel 1/16 – 1"	%
Pebble 1 – 2.5"	%
Cobble 2.5 – 10"	%
Boulder > 10"	%
Total	100 %

% Cover

0 – 0%

1 – 1-25%

2 – 25-50%

3 – 50-75%

4 – 75-100%

## 2. OBSERVED DISTURBANCE WITHIN 1/10-ACRE PLOT

### Disturbance

☐ Landslide ☐ Skid Trail ☐ Road ☐ None  
☐ Fire ☐ Timber Harvest ☐ Mining

### Evidence of Fire

☐ Charred Brush\* ☐ Charred Log\* ☐ Catface Tree\*

### Timber Harvest

Year ☐ Pre-1974 ☐ \_\_\_\_\_ ☐ \_\_\_\_\_  
 Silviculture\* \_\_\_\_\_

### Silviculture Intensity (Basal Area Removed)

☐ Unknown ☐ Low (<10%) ☐ Moderate (10-50%) ☐ High (>50%)

### Soil Disturbance

☐ 0% ☐ 1%-25% ☐ 25%-50% ☐ 50%-75% ☐ 75%-100%

Overstory  
Hits/Misses

C \_\_\_\_\_

N \_\_\_\_\_

E \_\_\_\_\_

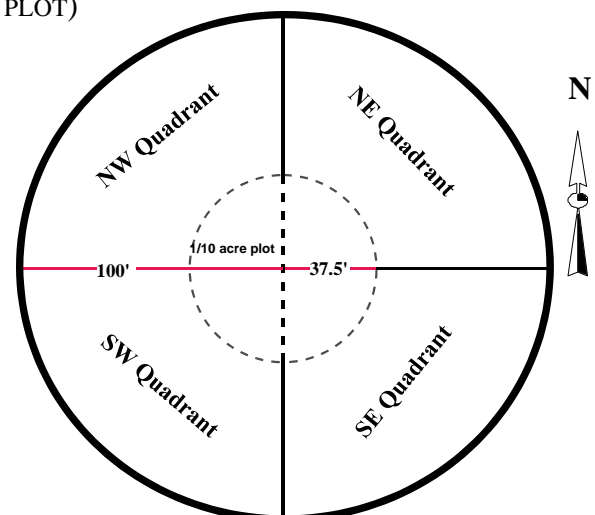
S \_\_\_\_\_

W \_\_\_\_\_

## 3. OBSERVED WITHIN 100-FOOT (OUTSIDE 1/10 –ACRE PLOT)

### QUADRANT AREA\*

	NE	SE	SW	NW
Landslide	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skid Trail/Landing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Road	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Timber Harvest (pre-'74)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Timber Harvest (post-'74)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mining	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SMS Habitat*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## DBH

[illegible]

## Comments

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## INSTRUCTIONS

- **Ocular Estimates:** Use a 1/10-acre plot (37.5' radius) to summarize characterization and disturbance information. It may be useful to: 1) partition the plot into four artificial quadrants, 2) assess each quadrant, 3) then record the sum total.
- **Lat/Long:** Using a gps unit, mark the plot center as a waypoint. The plot center is where the 1<sup>st</sup> animal was captured. If this is not known, then the plot center should be the best estimate of 1<sup>st</sup> capture. Name the waypoint identical to the “DFG Database Site #” located in the upper right-hand corner. Record the Lat/Long information on the datasheet.
- **Photos:** From the center of the plot, use a digital camera to take photos at eye level. Take a photo in each cardinal direction and record the photo number in the space provided. Photos should be saved on a hard drive and labeled by “DFG Database Site #\_direction”. You may submit the storage card with the site forms if you wish.
- **% Slope:** Using a clinometer from the center of the plot, take one slope reading facing uphill and another reading facing downhill. Average the two readings and record that number in the space provided.
- **Azimuth:** Use a compass to record the aspect in degrees. Make sure the declination on the compass is set at 17° East (clockwise).
- **Elevation:** Record the elevation from the gps unit.
- **CWHR:** Use CWHR for treed habitats. Remember, a montain conifer-hardwood (MCH) stand must have at least 1/3 conifers and at least 1/3 hardwoods representing the overstory. Place the C or H first based on the dominant overstory. See the definitions for size classes and canopy closures. A multi-layered size class (6) is a class 5 over another class.
- **Basal Area:** Measure the dbh for conifers (cfr) and hardwoods (hwd) using a biltmore stick. Record the species and dbh in the spaces provided on the back side of the site form. Trees must have a minumum dbh of 6”.
- **Percent Cover:** Everything except “overstory” will be assigned a cover class code based on the chart on the right hand side of the site form. For example, if rock >1” is present in 50 – 75% of the plot, then it will be assigned a “3”. **Understory** is for trees and shrubs under the canopy. *Poison oak* is a shrub.
- **Overstory:** Using a site tube, record a hit or miss at five locations. These five locations include the center point (C), and at 37.5' in each cardinal direction (N, E, S, W). Record a “1” for a hit, a “0” for a miss. Multiply the number of hits by 20, then record that number as a percentage in the space provided.
- **Rock Composition:** Rock composition is recorded as unique ocular estimates in percentage. The total will equal 100%.
- **Timber Harvest:** A Forest Service or Company employee may be able to provide this information in the field. Use the codes from the definitions section. This information may need to be documented using GIS analyses, personal contacts, etc.
- **100-foot Quadrant Area:** Record general disturbance and habitat information for each individual quadrant. This applies out to 100 feet from the 1/10-acre plot center **and** from outside edge of 1/10-acre plot.

### EQUIPMENT LIST

clinometer  
compass  
gps unit  
site tube  
biltmore stick  
range finder  
camera  
data sheets  
pencils  
100-foot (minimum) tape  
flagging

## DEFINITIONS

### CWHR

size class	dbh	Canopy Closure	% Cover
1	< 1"	S	10 – 24.9%
2	1" – 5.9"	P	25 – 39.9%
3	6" – 10.9"	M	40 – 59.9%
4	11" – 23.9"	D	> 60%
5	> 24"		
6	Multi-layered		

### Tree species

Tree species	Code		
Red fir	ABMA	Sugar pine	PILA
Lodgepole pine	PICO	Black oak	QUKE
White fir	ABCO	BigLeaf Maple	ACMA
Douglas fir	PSME	Madrone	ARME
Cedar	CADE		
Ponderosa pine	PIPO		
Live oak	QUCH		
White oak	QUGA		
Knobcone pine	PIAT		
Aspen	POTR		
Other	Write Name		

### Percent Cover

Slash	1-10" (no length criteria)
Medium Logs	10-20" (no length criteria)
Large Logs	>20" (no length criteria)

### Evidence of Fire

Charred Brush	Burned leaves and limbs indicating recent disturbance
Charred Log	Evidenc of burning on down log indicating 5-10 year history
Catface Tree	A partially healed or grown-over wound on a tree stem resulting from fire. Indicates historic burn.

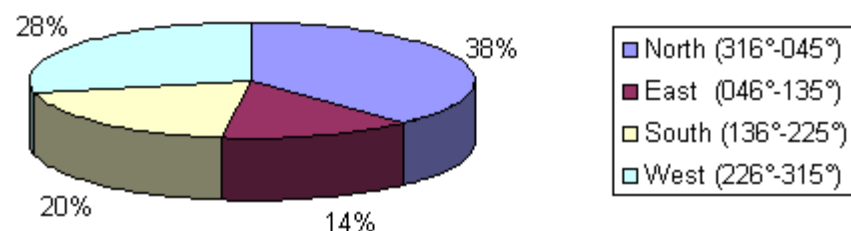
### Silviculture

Unknown	Clear Cut(CC)
Commercial Thin(CT)	Seed Tree Step(STS)
Shelterwood(SW)	Seed Tree Removal(STR)
Selection(SN)	Conversion(CN)

### SMS Habitat

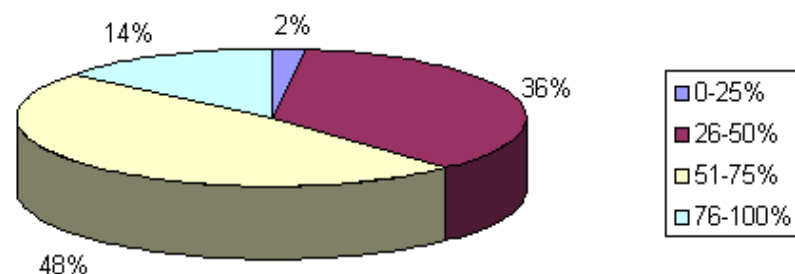
Sites occupied by SMS generally have a rock talus substrate with at least some cobble-sized rock that serve as cover objects.

Figure 1

**Aspect**

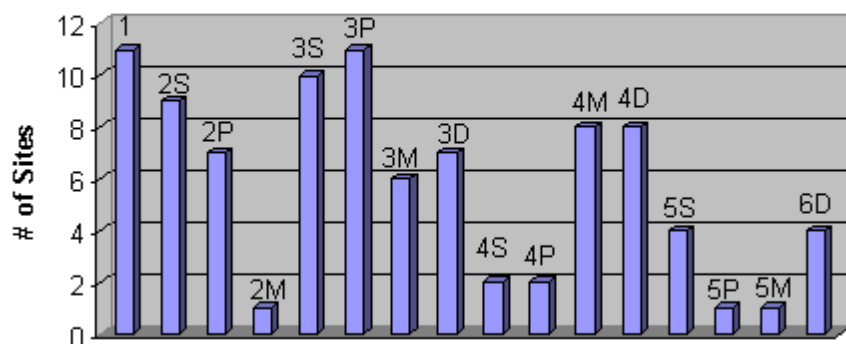
All aspects are represented.

Figure 2

**Slope**

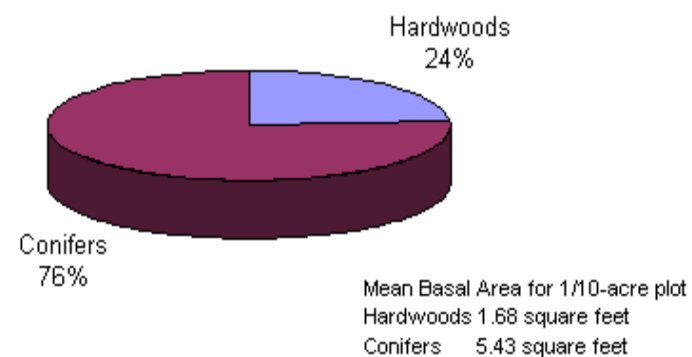
Sixty-two percent (62%) of the sites have a slope of 50% or greater (N=92).

Figure 3

**CWHR Size Classes**

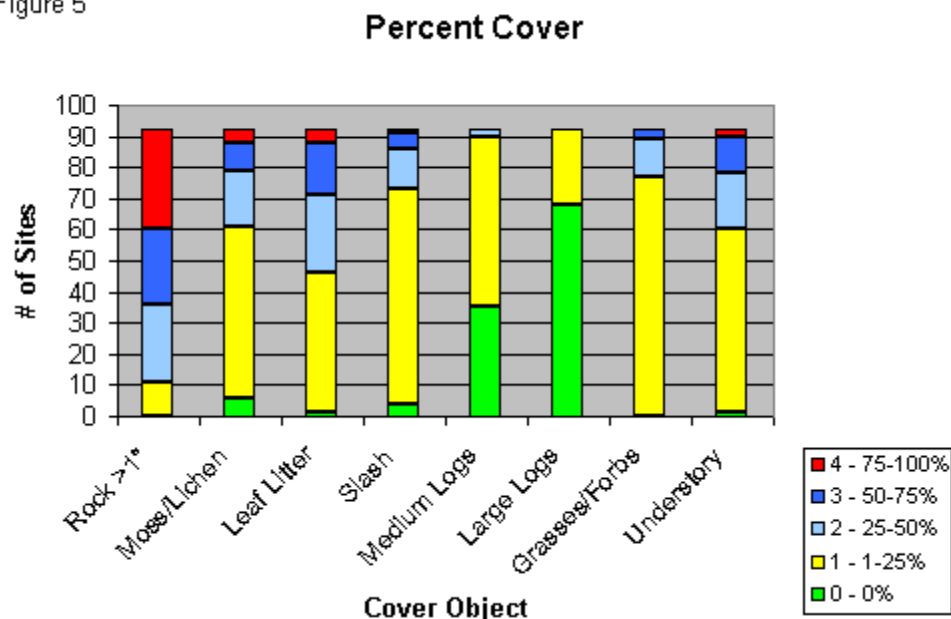
The majority (16 of 18) of CWHR tree size and canopy classes are represented among the 92 sites.

Figure 4

**Measured Basal Area**

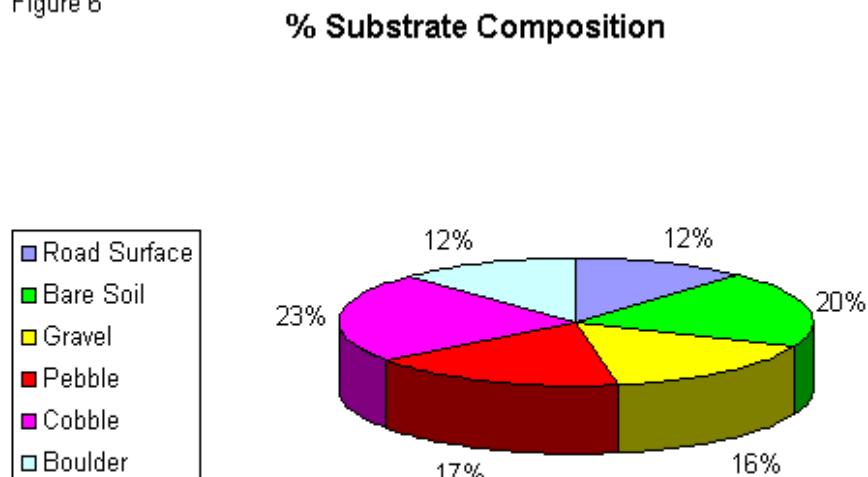
Conifers dominate the basal area at most sites. Hardwoods provided some or most of the cover at a total of 56 sites, and of those, 29 sites were classified as either Montane Hardwood/Conifer or Montane Hardwood.

Figure 5



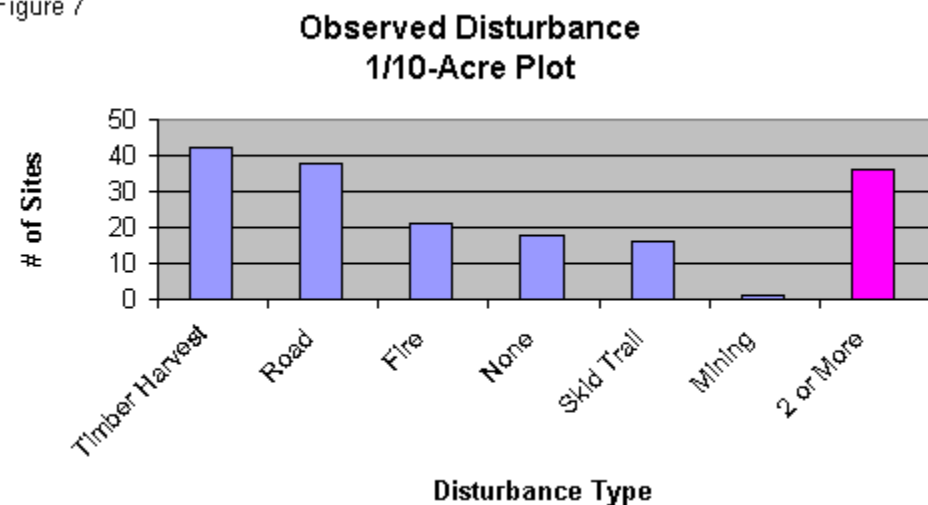
The percent cover of rock >2.54 cm (1 inch) covering each plot was estimated at 50% or more at 56 sites.

Figure 6



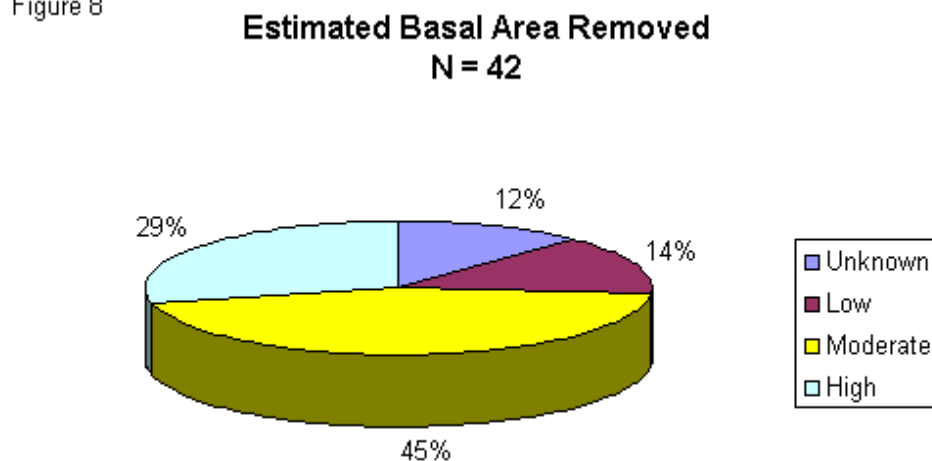
In each instance, the cover object where the first animal was detected was a cobble or boulder sized rock. Cobble and/or boulder-sized rock were visually estimated to be 35% of the rock surface cover at the 92 sites. Cobble and/or boulder-sized rock were present at all but one site.

Figure 7



Evidence of timber harvest (i.e., tree stumps) was observed at 42 sites. Multiple types of disturbance<sup>1</sup> were observed at 36 sites. No evidence of disturbance was found at 20 sites.

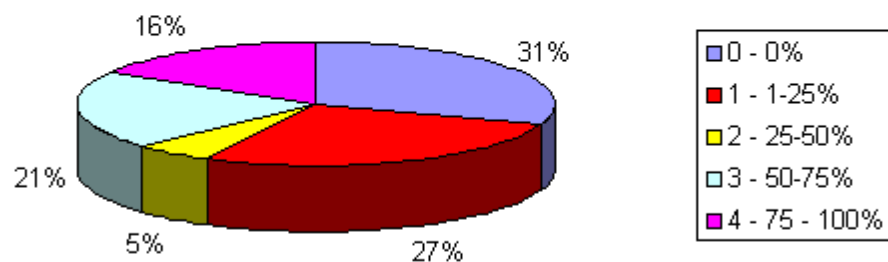
Figure 8



Moderate (10- 50%) and high (>50%) basal area removal was estimated at 45% and 29% of the 92 sites, respectively.

Figure 9

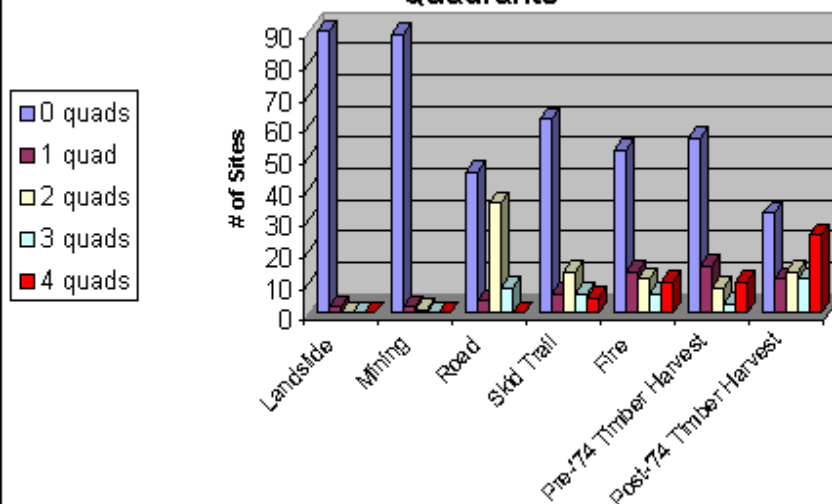
### Estimated Soil Disturbance



Soil disturbance was 50% or greater at more than one-third (37%) of the sites.

Figure 10

### Quadrants



Timber harvest has occurred in all 4 quadrants at 35 sites.

SMS habitat is available in all 4 quadrants at 70 sites.



sysno11\_0.JPG



sysno11\_90.JPG



sysno11\_180.JPG



sysno11\_270.JPG



sysno76\_0.JPG



sysno76\_90.JPG



sysno76\_180.JPG



sysno76\_270.JPG



sysno77\_0.JPG



sysno77\_90.JPG



sysno77\_180.JPG



sysno77\_270.JPG



sysno143\_0.JPG



sysno143\_90.JPG



sysno143\_180.JPG



sysno143\_270.JPG



sysno181\_0.JPG



sysno181\_90.JPG



sysno181\_180.JPG



sysno181\_270.JPG

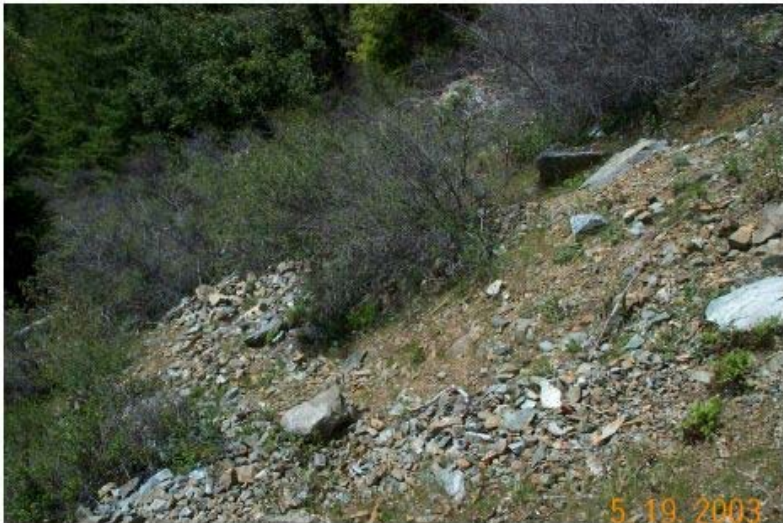
**Site 181**



sysno269\_0.JPG



sysno269\_90.JPG



sysno269\_180.JPG



sysno269\_270.JPG



sysno275\_0.JPG



sysno275\_90.JPG



sysno275\_180.JPG



sysno275\_270.JPG

**Site 275**



sysno289\_0.JPG



sysno289\_90.JPG



sysno289\_180.JPG



sysno289\_270.JPG

	2003 Precanopy Survey Sites (X = Survey)																			
	11**	46*	57*	76	77*	86**	91***	101	266*	269	275	278	289	130	139	143*	181*			
Date												Not located		Not located	Not located					
9-Apr-03						Snow		Snow												
11-Apr-03																Gate				
12-Apr-03																				
14-Apr-03		X					X		X											
17-Apr-03	X		X	X	X															
18-Apr-03																			X	X
22-Apr-03		X	X						X											
24-Apr-03							X													
29-Apr-03	X			X	X				X	X										
30-Apr-03											X									
4-May-03											X									
12-May-03						Snow		Snow								X				
7-Nov-03				X	X															
10-Nov-03																			X	X
17-Nov-03						X					X									

	North of Crest		South of Crest		California Precanopy	
	Survey Points	<i>Plethodon sp.</i>	Survey Points	<i>Plethodon sp.</i>	Survey Points	<i>Plethodon sp.</i>
Correlates Study	6	2	14	1	20	3
2003 Surveys	2	2	11	6	13	8

	S. of Crest
	N. of Crest
	<i>P. stormi</i>
	<i>P. elongatus</i>

For the habitat correlates study, the Redwood Sciences Laboratory surveyed 20 precanopy sites in California between 1995 and 1998. *P. stormi* was detected in 2 of 6 sites north of the Siskiyou Crest, and 1 of 14 sites south of the Siskiyou Crest.

In 2003, DFG attempted to survey the 17 precanopy sites where *P. stormi* was not previously detected. Three sites could not be located and one was inaccessible due to snow. In the remaining 13 sites, *P. stormi* was detected in or near 7 sites, *P. elongatus* was detected at 1 site.

To date, *Plethodon sp.* have been detected in 11 of the 20 precanopy sites from the habitat correlates study within California.

\* Found Flagging

\*\* Found Stake

\*\*\* Found the stake at what DFG considers unsuitable habitat, containing unlayered rock on soil.

## 2003 SMS Survey Data for Pre-Canopy Sites

All plots surveyed have <30% canopy closure

Site #	Spring/Fall	Adult	Subadult	Juvenile
76*	Spring	1	2	3
	Fall	2	0	0
<b>Sub-total</b>		<b>3</b>	<b>2</b>	<b>3</b>
77*	Spring	2	1	0
	Fall	4	1	0
<b>Sub-total</b>		<b>6</b>	<b>2</b>	<b>0</b>
181*	Spring	1	1	1
	Fall	2	2	1
<b>Sub-total</b>		<b>3</b>	<b>3</b>	<b>2</b>
275*	Spring	1	1	0
	Fall	0	2	3
<b>Sub-total</b>		<b>1</b>	<b>3</b>	<b>3</b>
143*	Spring	0	1	0
	Fall	0	1	1
<b>Sub-total</b>		<b>0</b>	<b>2</b>	<b>1</b>
<b>Total</b>		<b>13</b>	<b>12</b>	<b>9</b>
11	Spring	2**	1	1
269	Spring	1	3	6
289***	Spring	2	0	0
<b>Total</b>		<b>5</b>	<b>4</b>	<b>7</b>
<b>Grand total</b>		<b>18</b>	<b>16</b>	<b>16</b>

\* Timber harvest within 15 years

\*\* 1 gravid female

\*\*\* P. elongatus